

HARDWARE REVISION

CPU

A piece of hardware that processes instructions.

Factors affecting a CPU's performance

- 1- Clock speed (measured in hz). Higher the clock speed the faster it will process an instruction.
- 2- Cores: More cores means more instructions processed simultaneously.
- 3 - Cache: Fast memory location close to CPU.

CPU – Fetch Execute Cycle

Fetch – Fetches an instruction from an address in memory.

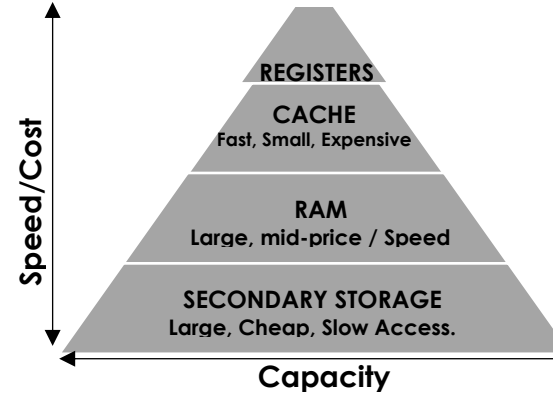
Decode – Uses the ALU to perform any calculations.

Execute – Carries out the instruction.

Computer Systems Definitions

Computer system	Device which contains hardware and software.
Hardware	Physical components.
Software	Programs on a computer.
Inputs	A device which sends data in.
Outputs	A device which receives data coming out of the computer.
Processes	Actions

Types of Memory / Storage



Memory

Hardware that holds programs.

RAM

Volatile
Editable
Contain programs in use.

ROM

Non-volatile.
Not editable.
Contains bootstrap loader.

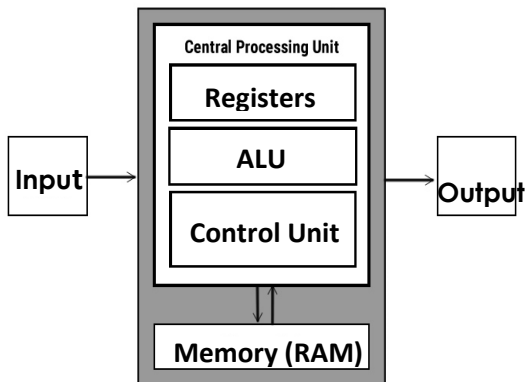
Secondary Storage

Hardware that permanently stores data.

	Example	Fast?	Large?	Durable?	Cheap?
<u>Magnetic</u>	Hard drive	x	✓	-	-
<u>Optical</u>	Disk	-	x	x	✓
<u>Solid State</u>	Pen drive Solid State drive	✓	✓	✓	x

Von Neumann Architecture

Complete the following diagram using the words given.



CPU Components

Component	Function
Arithmetic Logic Unit (ALU)	Carries out all the arithmetic (+- * /) and logic (AND, OR NOT, >, < <=, >=) operations.
Control Unit	Controls and manages the fetch and executing.
Buses	Address Bus carries the address of the next instruction.
	Data Bus carries the data of the address around the CPU.
	Control bus carries out control signals throughout the CPU.
Connections between components	
Registers	Small, fast memory locations in the CPU.
Clock	Device which vibrates continually and controls the speed the data is passed through the buses around the CPU.

Cloud Storage

Data stored on a third parties server.

Advantages

Free / Cheap
Back ups
More space on device

Disadvantages

Security
Reliant on server
Need internet access

Embedded Systems

A computer system with a microprocessor, which usually performs specific tasks.

Examples

Microwaves
ATM points
Traffic lights
Vending machines

Difference to Computers

Uses a microprocessor.

Contains just memory (no storage).